

#### **ABSTRACT OF THE DISCLOSURE**

The present invention is drawn to methods of characterization of the properties and functions of SV2 proteins. The invention further includes methods of identifying compounds or agents which modulate the activity of SV2 proteins. Included in these methods is the identification of compounds or agents which modulate the binding of levetiracetam to SV2 proteins, including SV2A. Additionally, the present invention provides biotinylated ligands as a tool to screen chemical libraries and characterize the SV2 proteins. Further, the present invention provides a method of solubilizing and purifying functionally active membrane associated proteins, such as SV2.